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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,228	12/15/2003	Takeshi Nakao	36856.1173	2323

54066 7590 01/26/2006

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EXAMINER

DOUGHERTY, THOMAS M

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 01/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/734,228	Applicant(s) NAKAO ET AL.	
	Examiner Thomas M. Dougherty	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 15 and 16 is/are rejected.
- 7) ☒ Claim(s) 11-14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. No proper antecedent basis has been found for the citation in claim 1 of the 'irregularities between portions of the top surface of the insulating film disposed above electrode fingers of the at least one interdigital transducer and portions of the top surface of the insulating film disposed between the electrode fingers [as being] approximately 30% or less than the film thickness of the interdigital transducer' in the applicants' disclosure. While the REMARKS with the amendment note that allusion to such is cited at the first full paragraph of page 2 of the originally filed specification, the range itself is not cited. Please provide a basis for the range that is in the specification if the applicant intends to maintain this language.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8, 10, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kadota et al. (US 6,185,801). Kadota et al. show (fig. 1) an end surface reflection type surface acoustic wave device comprising: a piezoelectric substrate (2) having two opposing end surfaces (2a, 2b) on which a surface acoustic wave is reflected; an electrode film (3) made of at least one of Al and an alloy including Al as a major component (col. 4, ll. 3-6) on said piezoelectric substrate and which defines at least one interdigital transducer (3a, 3b), and an insulating film (4) arranged on said piezoelectric substrate (2) so as to cover said electrode film (3); wherein a top surface of the insulating film (4) is planarized, and a ratio of the average density of said electrode film (3) to the density of the insulating film (4) is less than or equal to about 1.5.

Said insulating film is made of SiO₂. See col. 4, ll. 30-34.

Said piezoelectric substrate is made of at least one of LiTaO₃ and LiNbO₃.

When the wavelength of the surface acoustic wave is denoted as Σ the film thickness H_s/Σ of said insulating film made from SiO₂ is in the range of about 0.15 to about 0.40. See column 5, lines 18-24.

Said electrode film (3) defines one interdigital transducer (3a, 3b) and is a surface acoustic wave resonator.

Said end surface reflection type surface acoustic wave device is one of a resonator-type filter, a ladder-type filter, and a lattice-type surface acoustic wave filter.

Said end surface reflection type surface acoustic wave device is a one-port-type surface acoustic wave resonator.

The piezoelectric substrate has a substantially rectangular shape.

The at least one interdigital transducer includes a pair of comb electrodes.

The at least one interdigital transducer is made of Al (as noted).

Kadota doesn't note anything about irregularities between portions of the top surface of the insulating film disposed above electrode fingers of the at least one interdigital transducer and portions of the top surface of the insulating film disposed between the electrode fingers as being approximately 30% or less than the film thickness of the interdigital transducer.

It would have been obvious to one having ordinary skill in the art to have have irregularities in the claimed range of the applicants in the device of Kadota et al. at the time of their invention since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kadota et al. (US 6,185,801) in view of Sato et al. (US 6,236,141). Given the invention of Kadota et al. as noted above, they do not specifically note that their piezoelectric substrate is a 36° rotated Y-plate X-propagation LiTaO₃ substrate.

Sato et al. show (fig. 2) an end surface reflection type surface acoustic wave device comprising: a piezoelectric substrate (11) having two opposing end surfaces on

which a surface acoustic wave is reflected; an electrode film (13) as a major component on said piezoelectric substrate and which defines at least one interdigital transducer.

The piezoelectric substrate is a 36° rotated Y-plate X-propagation LiTaO₃ substrate. See col. 5, ll. 17-22.

Sato et al. don't show Al or Al alloy electrodes, nor does they show an insulation layer.

It would have been obvious to one of ordinary skill in the art to employ the 36° rotated Y-plate X-propagation LiTaO₃ substrate in the invention of Kadota et al. at the time their invention was made because it has known characteristics for such application as taught by Sato et al.

Allowable Subject Matter

Claims 11-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The remaining prior art cited reads on some aspects of the claimed invention.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

Art Unit: 2834

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Direct inquiry to Examiner Dougherty at (571) 272-2022.

tmd
tmd

January 20, 2006

Thomas M. Dougherty
TOM DOUGHERTY
PRIMARY EXAMINER